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ABSTRACT

A profile of Taiwan is sketched in this paper. Emphasis is placed on the nature, scope, and accomplishments of population activities in the country. Topics and sub-topics include: location and description of the country; population (size, growth patterns, age structure, urban/rural distribution, ethnic and religious composition, migration, literacy, economic status, future trends); population growth and socio-economic development (relationships to national income, size of the labor force, agriculture, social welfare expenditures); history of population concerns; population policies; population programs (objectives, organization, operations, research and evaluation); private efforts in family planning; educational and scientific efforts in population; and foreign assistance for family planning activities. (RH)

Country Profiles

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TAIWAN

THIS report was prepared by S. M. Keeny, East Asian Representative, and George P. Cernada, Field Associate, Taiwan, both of the Population Council, with T. C. Hsu, M.D., Commissioner, Taiwan Provincial Health Department, and Director, Institute of Family Planning; Dr. T. H. Sun, Associate Director of the Institute; S. C. Hsu, M.D., Chief, Rural Health Division, Joint Commission on Rural Reconstruction; and L. P. Chow, M.D., Director, Chinese Center for International Training in Family Planning. They express their appreciation to their other colleagues in Taiwan whose comments and suggestions are included.

Location and Description

Taiwan is a small island about 90 miles off the southeast coast of the mainland of China. To many Westerners it is known as Formosa (or "lovely island") from the name given it by Portuguese sailors; the Chinese name, "Taiwan," means "terraced bay."

The island, which is about 245 miles long and only 85 miles across at its widest point, has one of the highest population densities in the world—about 970 persons per square mile in a 14,000 square mile area. Half the island is mountainous with few inhabitants; the other half, to the west, is fertile with more than 2,000 people per square mile.

Taiwan is administratively a province of the Republic of China. It has 4 cities and 16 counties, subdivided into 345 townships. Taipei, the provisional capital of the Republic of China, is a separate national administrative area subdivided into 16 districts. The island's total 361 townships and districts (including Taipei) are further subdivided into about 6,820 *lis* (similar to a village) and 95,293 *lins* (neighborhood unit). Each lin comprises about 25 households.

Population

Size

Taiwan's aboriginal inhabitants are believed to have been of Malaysian origin. The earliest dependable report of the inhabitants was written in 1602 by Chen Ti, a Chinese admiral who observed them after pursuing a band of pirates from the mainland to Taiwan. Although some Chinese adventurers, small traders, and fishermen came from the mainland, they were few in number until the Dutch colonization beginning in 1624. The Dutch encouraged the Chinese to settle and produce sugar for export and rice for local consumption. The Chinese population in Taiwan increased from a few score or hundred in 1600 to an estimated 50,000 by the 1660's. By 1662 the Dutch had been driven out by Koxinga, a royalist of the Ming dynasty, and more migration continued. In the 1680's there were an estimated 120,000 Chinese. By 1811 there were an estimated 2 million as immigrants came in greater numbers.[1]

In 1895 the island was ceded to Japan. In 1905 the Japanese conducted the first census, which estimated a population of 3,123,302. By 1943, the number had increased to 6,585,841. When Japan surrendered in 1945, Taiwan was restored to the Republic of China. In 1946, after the migration of about 500,000 Japanese, the population was 6,090,860. From 1947 to 1964 slightly more than a million migrated from the mainland and the death rate declined sharply; the population size doubled in only 18 years, reaching 12,256,682 in 1964. At the end of 1968 it was 13,650,370 (excluding the army). This rapid growth has made Taiwan one of the world's most densely populated areas.

Average size of households. Especially in cities, which are under the pressure of modernization, the family structure is changing in favor of smaller families. The surplus labor in the rural areas, mainly younger adults, tend to seek jobs in the cities, where a large family is a disadvantage. Average family, therefore, is larger in the rural areas than in the cities. A sample survey in 1965–66 indicated that family size was 4.8 in the cities, 5.7 in the towns, 5.9 in the rural townships, and 6.3 in the aboriginal townships, averaging 5.4 persons per household.

Number of women of reproductive age. In 1968 there were about 3 million women of childbearing age, 15 to 49 years, of whom 1.94 million were currently married.

Age at marriage. Women are marrying later than previously. In 1940 the average was 19.0 years, which increased to 20.9 in 1948 and 21.9 in 1963. The latest available statistics in 1967 indicated that average age at marriage was 22.6 years. In 1967 63.3 per cent of women 15 to 49 years were currently married. The proportion

[1] Parts of these historical data were selected from a number of articles on population growth and social change in Taiwan by the late Shao-hsing Chen, Professor of Sociology, National Taiwan University.

married in that year was 8.9 per cent for ages 15–19 (reduced from 11.4 per cent in 1963) and 56.4 per cent for ages 20–24 in 1967 (reduced from 59.3 per cent in 1963). The proportion married among women of higher age groups had risen slightly.

Growth Patterns

The fertility rate began to decline in 1952. In 1963, a year before the start of the island-wide IUD-centered family planning program, the birth rate was 36.3 per 1,000; the death rate, 6.1; and the rate of natural increase, 30.2. In 1968 the crude birth rate was 29.3 per 1,000, and the rate of natural increase 23.8. Since 1964 the fertility decline (the rate of decline in the birth rate) has accelerated to an average rate of 4.2 per cent per year, compared with 2.5 per cent in the years 1951–63. The goal of the family planning program, to lower the rate of natural increase from 3 per cent in 1963 to less than 2 per cent by 1973, has been half achieved.

In terms of the total fertility rate (the number of children per 1,000 women at the end of their reproductive career, following a particular fertility schedule), the reduction from 1963 to 1968 was from 5,352 to 4,315, or 19 per cent. This decline during the past five years has occurred mostly (82 per cent) among women above age 30.

Taiwan is one of the healthiest areas in Asia: the life expectancy at birth is 65.1 years for males, 69.8 for females. In 1967 the infant mortality rate was 22.6 (slightly underregistered), and the maternal mortality rate 0.62 per 1,000.

Age Structure

The rapid population growth in Taiwan has resulted in an unfavorable age composition, with a high dependency burden. In 1968 the population under 15 years of age was 42 per cent (as against only 22–31 per cent in advanced countries); every 100 persons of the economically productive ages 15–64 had to support 80 dependent persons (as compared with only 50–60 in the advanced countries). An active family planning program, like the one now under way, will mean fewer young people to support and could reduce the 1968 dependency ratio of 80 to 68 by 1973 and to 52 by 1988. Without an active program the dependency burden will be 73 in 1973 and 76 in 1988.

Ethnic and Religious Composition

Taiwan's population is mostly Chinese in origin, except for about 250,000 aborigines. Those who came or whose ancestors came to Taiwan prior to the Japanese occupation of 1895 and have their permanent domicile registered as Taiwan province, are often referred to as "Taiwanese." They accounted for about 86 per cent (including aborigines) of the population at the end of 1966. The remaining 14 per cent (1.8 million) who migrated to Taiwan after the Japanese occupation or after the restoration of Taiwan in 1945 have their permanent domicile registered as "other mainland provinces." (The official language used in the schools is Mandarin Chinese. Most younger people understand this. All Taiwanese understand their native dialects: "Fukkienese" or "Taiwanese" among those whose ancestors came from Fukkien province; "Hakka" among those "Hakka," most of whom came from Kwantung province.)

To identify an individual by his religious denomination is difficult. Most people believe in a mixture of Buddhism, Taoism, and Confucianism, including ancestor worship. Pure Buddhists comprise less than 10 per cent of the total population; Protestants, about 2 per cent; and Catholics, 1.5 per cent. Although Confucian teaching values a larger family, with at least one son, it has no specific doctrine against family planning. Religious opposition to family planning is slight.

Literacy

The literacy rate in Taiwan is one of the highest in Asia: in 1967, in the population over age 12, it was 88 per cent for males and 67 per cent for females. Six years of elementary education have been compulsory, and 97.5 per cent of the children of primary school age were enrolled in the 1967–68 classes. Beginning in 1968, three more optional years have been added. This is a preparatory step toward extending compulsory education to nine years. In fact, 70 per cent of the primary school graduates in 1968–69 (81 per cent of males and 61 per cent of females) enrolled in the junior high schools. In the 1968–69 school year, 63 per cent of the junior high school graduates enrolled in senior high schools, and 72 per cent of the senior high school graduates enrolled in colleges.

In 1968–69 the school population accounted for 26 per cent of the total population. This eagerness for education is perhaps generating an awareness that large family size may be a handicap to obtaining such education.

Migration

There is little external migration. Within Taiwan, however, there is considerable movement toward cities and industrialized towns. Taipei and the vicinity around it have absorbed the greatest proportion of these migrants, followed by Kaohsiung City, which is a newly industrialized area in the south with an international sea port. Some people also move to the east, particularly to Taitung county, in line with the government plan to develop the east coast. Because of this redistribution, the rate of increase of population during the past several years differs considerably among the 361 townships. Between 1961 and 1967 the growth rates ranged from 40 per cent or higher for 19 towns, to 10 per cent or less for 79; the provincial average was 20 per cent.

Because of the considerable internal migration, which tends to be selective as to sex, the sex ratios in Taiwan show the following pattern: the ratios tend to be higher in urban areas, where more males have moved in, and lower in agricultural areas, where surplus male labor has left for the cities. Sex ratios ranged in 1968 from 100.7 in Penghu county to 115.1 in Hualien county.

In short, people are moving to the cities. The population in Taipei City more than quadrupled in 20 years since 1946. This has created many serious problems: inadequate housing and slums, traffic congestion, night-soil and garbage disposal, water pollution, and dust fallout.

Future Trends

Changes in the age structure in the past have had only a slight effect on

the fertility decline. The age structure will, however, play a very substantial role in the near future because the large number of girls born during 1950–54 are now 15–19 years of age, and will start having children very soon. They now number 753,000, compared with only 468,000 for the next older age group 20–24.

On the other hand, changes in the proportion married (or the trend toward delayed marriage) have contributed moderately to the fertility decline. During the past five years, an estimated 23 per cent of the total decline in the birth rate was due to this change. Since the average age of marriage for women will continue to increase as living and education standards rise, there will be continued effects on the fertility rate. A comprehensive educational program to reach girls of 15–19 to encourage delayed marriage could have a significant impact. If the present proportions married for 15–19 and 20–24 in Taiwan could be brought down to the level of Japan in 1955 (1.7 per cent and 33 per cent, respectively), the birth rate could be reduced by 18 per cent.

Taiwan's population will continue to expand with or without a family planning program. It has been estimated, however, that with an active program, the population will be four million less 20 years from now than it would be without such a program.

Population Growth and Socio-Economic Development

Although Taiwan has not experienced a shortage of food supply despite the rapid population growth and has, in fact, benefited from the availability of low cost labor in its industrialization and export expansion, population pressure is being felt, as described below.

Relationship to National Income

The ratio of net investment to national income has been high. It increased from between 9 and 13 per cent during 1953–59 to between 13.5 and 15.6 per cent during 1960–64, and to 19.9 and 20.4 per cent from 1965–66. If the investment ratio remains at about 20 per cent and if the increase rate of the economically active population is reduced to 2 per cent (the short-range government goal), the capital increase rate per economically active person would rise by one-third.

As a result of the rapid increase of the economically active population, investment for each additional active person has remained low—only two-thirds of the estimated requirement to create a new job. This could mean that about half of the new labor force would not be given the chance to participate in productive activity.

Taiwan's annual real income per person in 1967 was US$192 (based on 1964). The total national income tripled from 1952 to 1967, but the income per person only doubled, because of the population growth.

Relationship to Agriculture

The population is still mainly agricultural, although the proportion above age 12 engaged in agricultural production has declined from 61 per cent in 1952 to 58 per cent in 1966. (The proportions in 1966 were 12.3 per cent in industry, 9.0 per cent in commerce, 3.3 per cent in transportation, 9.0 per cent in personal services, 4.1 per cent professional, 8.1 per cent in government services, and 1.2 per cent in other employment. The proportion employed in industry increased from 9.3 per cent in 1952 to 12.3 per cent in 1966.)

The rapid increase in population also has resulted in the fragmentation of land. The percentage of farm families with less than one hectare (2.47 acres) of land increased from 46 per cent in 1939 to 63 per cent in 1955 and to 67 per cent in 1965. The average holding of arable land per farm family dropped by one-third in 20 years from 1.58 to 1.05 hectares. The number of people in the total population who had to be supported by each hectare of arable land has doubled in 20 years.

If importation of wheat was suspended and was not replaced by increased local production, then rice production would be barely enough to feed the population by 1974, given the 1968 growth rate of about 2.4 per cent. In other words, beginning in 1974 Taiwan will be changing from a food surplus and net grain exporting area to a food deficit and net grain importing area. An active family planning program will postpone this situation for five years.

Relationship to Social Welfare Expenditures

Primary school education has become an ever-growing item in local governments' budgets. It rose steadily from 11 per cent before 1953 to 40 per cent by 1966. On the other hand, public health's share in the total government budget has declined from 4.9 per cent in 1956 to 2.8 in 1966, and the share of social welfare and relief has remained very low at 1.7 per cent.

Public education. From 1950 to 1966, the average number of pupils per primary school increased from 737 to over 1,000. The average number of students per class increased from 51 to 53, resulting in overcrowding and too heavy a burden on the teacher. Many schools were compelled to hold classes in shifts for lack of classrooms. In 1967, 43 per cent of classes were on two shifts, 2.4 per cent on three, and 0.4 per cent on four.

Medico-health personnel. The population has grown faster from 1954 to 1966 than the supply of medico-health service personnel, as shown by the ratio of population to physicians, which moved from 2,199:1 to 2,363:1; the ratio of population to midwives, which went from 5,022:1 to 5,529:1; and the number of people served by each medico-health worker of local health units, which increased from 2,743 to 3,424.

History of Population Concerns

In 1920 Sun Yat-sen, father of the Republic of China, pointed out that if China's population growth rate remained static, as it had for the previous two centuries, China would be taken over by the Western nations. Proponents of Dr. Sun's teaching represented the overwhelming majority for many decades. During those years, population growth was arrested by three natural regulators: disease, famine, and war. By mid-century, however, political stability, agricultural improvement, and the introduction of modern medicine and public health measures in Taiwan had raised the natural increase rate from 20 per 1,000 in 1947 to 38 per 1,000 in 1951. This change prompted the Sino-

American Joint Commission on Rural Reconstruction (JCRR) in 1950 to issue a pamphlet on the rhythm method of birth control. The reaction was unfavorable: a petition to the Premier denounced the effort as a Communist plot to weaken the military.

Despite this unpromising beginning, by 1952 JCRR had begun a demographic study partially sponsored by the Rockefeller Foundation and Princeton University. The study clearly indicated that the more children mothers had, the higher the death rate and the more likely the chance of their being placed for adoption. The findings were circulated to government officials and leaders as well as to the public.

In 1954 the China Family Planning Association was begun by a group of individuals in the capital city of Taipei. Their first job was to provide information on infertility and the health value of child spacing during first aid courses given to military dependents.

In 1959, despite difficulties, the Governor of Taiwan agreed to set up "pre-pregnancy health" (PPH) services at local government health stations. The Governor had become convinced that a reduced population growth rate would not reduce the size of the army for at least 20 years and would definitely be a stimulus to the economy. From 1959 to 1963, 120 of the 361 local health stations added a full-time PPH worker to visit women at home and to provide them with conventional contraceptive methods.

In 1961 the Taiwan Population Studies Center was established in the framework of the Provincial Health Department, with the assistance of the Population Council and the University of Michigan. Its purpose was to undertake surveys and studies on the determinants and consequences of population growth. By releasing its findings it intended to promote better understanding of population problems among administrators and the public.

A year later, the Population Council began the classic experiment in Taichung City (now referred to as the "Taichung Study") to determine what communications approaches reached women best and which contraceptive methods were most desired. The findings showed that the intrauterine device (the Lippes loop) and systematic home-visiting were the best approaches. (See "Research and Evaluation," page 10.)

In 1963 the newly-appointed Health Commissioner extended the family planning action-study program beyond Taichung City. A 5,000 loop-acceptor target brought in 10,000 acceptors; the need for funds to support further extension was obvious. The following year, K. T. Li, Minister of Economic Affairs, arranged to provide US$1.5 million in local currency from a special account derived from US counterpart funds to conduct a five-year family planning program. The main reason for his action was the recognition of the economic value of lowering the rate of natural increase from 3 per cent to less than 2 per cent.

Population Policies

As early as 1964 the Ministry of Interior had formed a Population Policy Study Committee. Since there were politically strong members opposed to any policy of regulating growth, no recommendations were made. In June 1966 the new Minister reorganized the committee, effectively excluding opponents. Twelve months later two documents were produced: (1) a set of regulations governing the implementation of family planning in Taiwan and (2) an outline of population policy for the Republic of China. These were submitted to the Executive Yuan (Cabinet) for adoption.

In May 1968, on the opening day of the first East Asian Population Conference in Taipei, the government announced its approval of the family planning program regulations. This promulgation effectively legitimized what had been previously an unofficial family planning program, which had been extended throughout the island from 1964 to 1968. The basic points of the government's announcement were:

(a) "Married women may go to a public health/medical agency for the following services free or at reduced fees: ante-natal examination, Maternal and Child Health guidance, and contraceptive and pregnancy guidance."

(b) "A married woman with three or more children may, of her own free will, ask a public health/medical agency for contraception. For needy families, the fees for such services and supplies may be reduced or waived."

(c) "To implement family planning, the competent authorities at the county and city level and above may employ additional personnel according to actual needs, and each township health station shall for this purpose employ additionally a full-time doctor or midwife and a home visitor."

A year later, on 11 May 1969, the Executive Yuan announced the "Outline of Population Policy," which favored a policy of limiting population growth and also legalized for the first time therapeutic abortion and sterilization under certain restrictive medical conditions only. This policy, however, will probably not affect the rate of induced abortion, which, although illegal, has long been widely and openly practiced.

Population Programs

After the encouraging Taichung experiment, which suggested that more than 80 per cent of married women approved of family planning, a few dedicated leaders determined to extend family planning services in advance of a national policy. Indeed, they foresaw correctly that evidence of a growing demand would eventually lead to such a policy.

There was little with which to begin. The "pre-pregnancy health" workers and the voluntary Family Planning Association together had on their lists the names of fewer than 100,000 couples who, at one time or another, had applied for services with the "traditional" methods: condoms, foam tablets, diaphragms, etc. It is doubtful whether half this number were practicing family planning in 1963. The development of the Lippes loop was an encouraging new factor for reaching more women. (Pills were then too expensive to be considered for a mass program.)

Objectives

The target was to reduce the growth rate from 3 per cent to 2.5 per cent in five years, starting in 1963, and to 2 per cent in ten years. There was little experience from other countries to serve as a guide. The chief

method chosen was the loop; the estimate of the number required was 600,000 for the first five years. The counterpart funds were granted, and targets were set for counties and individual workers.

Type

The government announced that each couple had the right to decide whether to use family planning techniques and that it was the government's duty to provide them with the information. The actual services were to be provided by a "voluntary agency," the Maternal and Child Health Association, set up specifically for this purpose. Although its members were mostly government employees, they were acting in a private capacity.

Insertion of loops was to be performed primarily by private doctors, mostly obstetricians; government doctors were not to be involved. The doctors selected, one or more in each township if possible, agreed to insert the loops for US$1.50 each, of which the mother was to pay half unless she was too poor.

In order to keep the government out of direct services, full-time field workers were to be employed, attached to the health stations but not officially part of the staff. In fact, these are the people who brought the mothers to the doctors; they launched the program and have kept it going to this day.

Organization

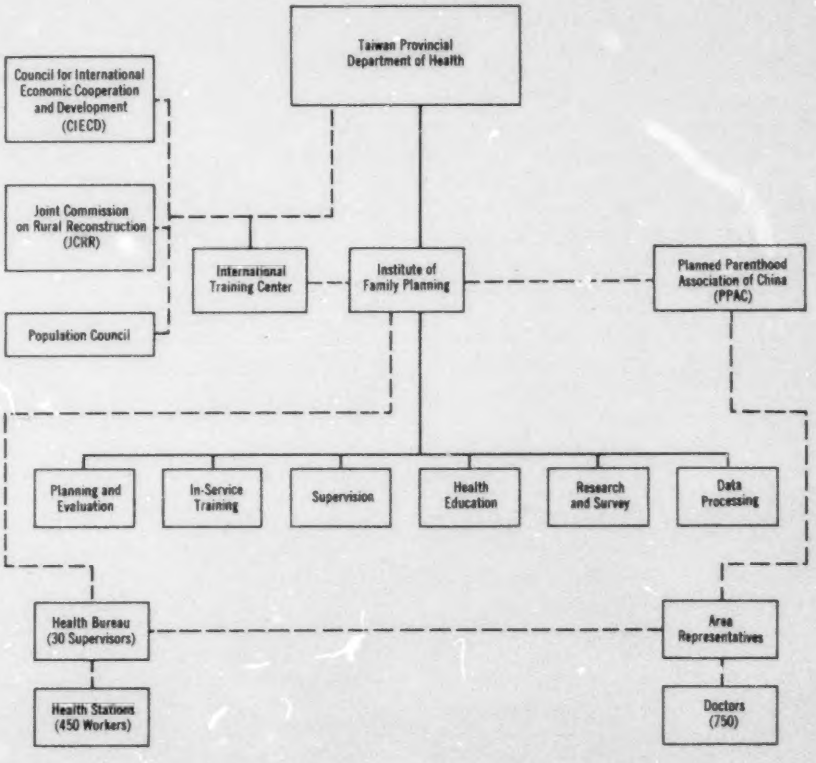
From 1964 through 1968 the action administration of the program was carried on by the Committee on Family Planning, the research and evaluation by the Taiwan Population Studies Center, and the supply administration by the Maternal and Child Health Association (MCHA). The Studies Center carried out population studies and program evaluation; the Committee carried on program administration. In 1969 the Committee and the Studies Center were merged into one unit, the Institute of Family Planning (located in Taichung, the capital of the Province of Taiwan), which is an agency of the Taiwan Provincial Health Department (Figure 1). Its functions are to administer and evaluate the Taiwan family planning program. The voluntary MCHA now functions under the new title of Planned Parenthood Association of China.

In addition, the Chinese Center for International Training in Family Planning was established under a Population Council grant to improve the handling of the increasing number of international visitors to the Taiwan program. The Joint Commission on Rural Reconstruction, located in Taipei, continues to aid the program by providing accounting services, visitor orientations, customs-free entry of foreign commodities, and program consultation through its Rural Health Division.

Operations

Information and education. Since 1964 the main emphasis of the information and education program has been face-to-face communication, carried out by home-visiting family planning workers. Taiwan's use of the mass media to support the family planning program, however, has a short history. It was limited by a lack of government policy officially supporting the program until May 1968, a small budget of mostly outside funds, and almost no staff. In 1966 limited use began with infrequent news releases, occasional radio spot announcements, and slides at movie theaters. In late 1966 a special study in Kaohsiung City (the island's second most populated city) was conducted to find efficient ways to reinforce field work with a more intensive mass media effort. From this study, some basic guidelines were derived and stimulus was given to broadening the use of mass media. From the pre-campaign findings it was found that radio rated highest in terms of the limited budget available since 72 per cent of women were listening regularly, as compared with 40 per cent attending movies, 29 per cent reading newspapers, 19 per cent reading magazines, and 13 per cent watching television. Among uneducated women,

FIGURE 1. *Taiwan Family Planning Program: Organization Chart*



radio and movies were virtually the only mass communication channels open.

The need for a more extensive educational campaign using the mass media was further verified by the findings of the late 1967 island-wide KAP survey (knowledge, attitude, and practice of family planning): about 38 per cent of wives interviewed knew nothing about the loop and 53 per cent nothing about the pill.

During 1968 and 1969 there has been a significant increase in public information output. Use of the mass media, particularly radio, and also production and distribution of educational materials have been stressed. The job has been accomplished by hiring the needed staff workers.

By 1969, 23 of Taiwan's 92 radio stations were carrying either brief family planning skits or spot announcements; about 80 radio spots and 40 skits were broadcast daily. After a critical review of both radio content and timing was carried out in 1968, emphasis shifted toward lengthening the announcements and skits. Also, prime time was purchased at eight local radio stations during the daily "Taiwanese Opera" presentations, in response to the Kaohsiung City Survey finding that this was one of the most popular programs among housewives.

Showings of slides at movie theaters also were reviewed and the approach changed. Some of the showings were restricted to areas where free loop insertions were being offered in order to spread the word of the limited-time-only offer as widely as possible. Multiple copies of three locally-made brief family planning films were shown outdoors in 58 villages to an estimated 30,000 viewers from May through December 1968. By the end of September 1969, they and the new Disney family planning film, "Family Planning," had been shown to an estimated total of 250,000 in 450 villages.

Production of leaflets, pamphlets, and booklets has tripled since 1967, with most of these aimed at target groups: government leaders, radio listeners (special mail-in offers announced), movie audiences, newspaper readers, etc. Mailings continued during 1968 and 1969, primarily to women who had recently given birth. During 1968, 321,000 letters were sent to 75 per cent of all wives who had had babies during the year. The number of wives who received a letter and came for free loop insertion during 1968 was 12,748. By the end of November 1969, more than one million letters had been sent to new mothers (since April 1966). The return continued at a rate of about 4 per cent.

One of the first signs of program "visibility" since the government policy was announced was posters on the loop and pill, which began to appear on 2,300 buses throughout the island in 1968. Until then, most signs of public information were confined to the fleeting sounds and images of radio spots or two-second movie slides. Another sign was the doubling of newspaper articles on the subject of family planning—to about 90 per month in Taiwan's 31 newspapers. Part of this resulted from doubling the number of program news releases. In 1969, 6,000 large and 150,000 small posters were displayed at public bus and train stations, other organizations, and outdoors in every village.

The plan to hold seminars for 1,500 "community leaders" during 1968 fell short of its target by about 20 per cent. It was learned that bringing these people to Taichung for a briefing was even more time-consuming than training a team to visit these groups locally. Since the last quarter of 1968 the emphasis has shifted to local presentation, but progress has been slow in 1969.

A two-hour education session for all new military recruits, with emphasis on family planning, continued routinely at all nine Army, Air Force, and Navy recruit training centers. More than 200,000 had been instructed since the program began in June 1966. This program is being expanded to include emphasis on the desirability of delaying marriage.

One problem that continues to hamper the public information effort is distribution. Now that there is a government policy, the other relevant agencies, such as the Provincial Information Department, must help. The program lacks sufficient funds to conduct an intensive island-wide campaign; it requires outside help to show films in villages, to allow free showings of slides at movie theaters, to provide free display space, etc. In fact, the budget for both mass media and educational materials has not increased significantly in terms of the overall program budget—rising only from about 5 to 7 per cent over the past year, compared to an almost 50 per cent increase for field workers.

In summary, because of the efforts of an expanded and enthusiastic health education section, production of public information materials has begun and a program of mass education is underway. The output and coverage for 1968 has doubled over that for 1967, but there is much to be done in the information field if family planning is to become a top priority program. Virtually no action has been taken toward introducing family planning and population education into the nursing and medical schools and into the secondary, middle, and primary schools.

Methods. By the end of June 1969, 565,000 women of the approximately 1.7 million wives aged 20–44 had tried the loop (about 33 per cent). In addition, almost 80,000 have begun to use the oral pill, which was introduced in January 1967. On the average, Taiwan has about 10,000 loop acceptors monthly and about 3,000 women each month trying the pill for the first time. (See Table 1 for data on cumulative loop acceptance 1964–68.)

Most of the success to date has been with women over age 30, although 35 per cent of loops have been accepted by younger women (to the end of 1968). Taiwanese women marry on the average at 23, but they bear their children rapidly after that. Because the number of women aged 20–24 will increase by 60 per cent by 1973, it is important to reach them.

In addition to the need to reach younger women there is the problem of discontinuation of use with both the loop and the pill. It is estimated that at the end of 1968, of the 462,000 new loop acceptors (excluding reinsertions), about 220,000 (48 per cent) had discontinued. Although the rate of loop acceptance among wives 20–44 was 27 per cent (excluding reinsertions), the rate of current users was only about 14 per cent.

In order to provide another choice for those discontinuing the loop, the

TABLE 1. *Taiwan: Cumulative Loop Acceptance 1964–68, by Age, Wives 20–44*

Age group	Number of wives[a]	Cumulative Loop Acceptors through 1968	
		Number	As per cent of wives
20–24	251,788	44,436	17.6
25–29	408,003	143,667	35.2
30–34	381,779	162,458	42.6
35–39	336,091	107,377	31.9
40–44	269,905	42,702	15.8
All wives, 20–44	1,647,566	500,640[b]	30.4

a As of 31 December 1967; 1968 figures unavailable.
b Excludes 4,828 acceptors aged 45 and over.

pill was made available. It also, however, has not proved to be as good a continuer as hoped. Although 63,000 women had accepted by the end of 1968, the number of cycles being used monthly was only around 23,000.

A number of educational efforts have been made to reach doctors and field workers in order to raise continuation rates. There is little indication, however, of much success in preventing needless removals of the loop. Because of the small field staff, it is practically impossible to arrange any kind of continued field follow-up of acceptors. Furthermore, most of the inserting physicians are private practitioners over whom there is little supervision.

On the other hand, despite lower continuation rates with the loop than had been hoped for, fertility after insertion was considerably lower than before. Indeed, one matching study of loop acceptors and non-acceptors showed that the acceptors had a decline in fertility of 80 per cent compared to only 48 per cent for non-acceptors. (See "Research and Evaluation," page 10.)

In addition to loops and pills provided by the program, it is estimated that about 45,000 cycles of pills are sold monthly through commercial channels. Conventional methods are available readily at drugstores, which are in most towns. It also is estimated that annually about 12,000 couples (usually the wife) have sterilizations. The Ota ring, another intrauterine device, is also popular. The 1967 island-wide KAP survey showed that about 8.8 per cent of wives aged 20–44 were currently using the Ota ring and 6.6 per cent of married couples were sterilized, compared to 9.4 per cent of wives using the Lippes loop.

The number of abortions is estimated at about 35,000 annually; a study to pinpoint this figure more accurately is beginning in 1969. Results of the late 1967 KAP survey show that about 12 per cent of wives 20–44 had had one or more abortions. Nearly three-fourths of accidental pregnancies among women with loops interviewed in a 1967 IUD follow-up survey also had ended in induced abortion.

Budget. The total family planning program budget for the fiscal year 1968 was US$700,000, allocated as follows: salaries, 41 per cent; IUD insertion and other fees, 17 per cent; supervision, travel, and per diem, 13 per cent; public information and education, 7 per cent; maintenance of office and vehicles, 7 per cent; training, 6 per cent; other, 6 per cent; evaluation, 4 per cent.

PERSONNEL

Taiwan, unlike some other countries, has had little help in family planning from its hospitals. Few babies are delivered in government hospitals; the doctors are busy; and the financial returns for inserting loops are small. There has been no organized hospital postpartum program. Field workers collect the names of new mothers from the township's excellent registration system and visit them. Letters also are sent to new mothers offering them free loop insertions.

The main personnel involved in the Taiwan family planning program have been the doctors, who insert the loops, and the pre-pregnancy health (PPH) field workers, who refer most of the cases to the doctors. The number of doctors and PPH workers has been increasing since the loop program first began on a large scale in 1964: in January 1965 there were 370 doctors and 174 PPH workers; in November 1969 there were 745 doctors and 385 PPH workers.

Physicians. In March 1964 the China Medical Advisory Board, consisting of Taiwan's leading obstetrician-gynecologists, approved the expanded use of the loop. During 1964 and 1965 special training sessions were held for about 480 obstetricians and 110 general practitioners. These sessions (three days for general practitioners; one day for obstetricians) consisted of a short briefing on the Taiwan family planning program, the nature of the loop, and detailed instructions on insertion. The general practitioners inserted at least ten loops under supervision; the obstetricians needed little practice.

At present, most loop insertions are performed by private practitioners, who receive an insertion fee of US$.75 from the patient and a subsidy of US$.75 from the voluntary Maternal and Child Health Association, which draws its money from the counterpart fund. It is hoped to increase insertions by the government health personnel in late 1969 and 1970 now that the program has become an official one and family planning clinics have been opened in 16 Provincial Hospitals; but the bulk will continue to be inserted by private physicians.

Field workers. There are two types of field workers. (1) The pre-pregnancy health (PPH) workers, full-time staff, are assigned to and resident in a single township (population about 40,000). The first few were hired by the Provincial Health Department in 1960 to do home visiting to recruit conventional contraceptive method acceptors. By 1963 there were 120 PPH workers; by 1964 they were distributed to local health stations on an island-wide basis. They recruit about 60 per cent of loop acceptances. At the end of 1969 they will number 450. (2) The Village Health Education Nurses (VHEN), originally em-

ployed to improve rural village sanitation, have included family planning in their work. They move monthly from village to village in teams of three. Their number has not increased over the years. At present, they provide about 3 per cent of loop acceptances.

The full-time PPH worker who does the systematic house-to-house visiting to recruit acceptors has been very successful and is probably the most effective of her kind in any family planning program in Asia (Figure 2). She receives two weeks of intensive training in contraceptive methods, reproductive physiology, ways to approach eligible women, and methods of presentation of material. She has on-the-job training supervised by an experienced family planning field worker. Her previous education may be only junior high school level. One of eight is a trained midwife or a nurse. Her main talent seems to be the ability to discuss family planning simply and candidly during house-to-house visits in an area that has about 5,000 women of childbearing age.

The guideline through 1966 had been to concentrate on women with three or more children, at least one of them male. These women yielded about four of every five loop acceptors. Their names are available from the township office registers, and the family planning worker stops regularly at that office before she pedals her bicycle out to a village area. In 1967 emphasis shifted to wives with two or more children; in 1968, to new mothers. Each month the worker brings in about 20–25 loop acceptors directly. The area in which she works accounts for an additional 15, some an indirect result of her work.

About 85 per cent of the women who try the loop have less than junior high school education; 40 per cent have no formal education. Three out of five are 30 years of age or over.

During 1967, the pill was offered to those women who had been unable to continue use of the loop. In late 1969,

FIGURE 2. *Taiwan: The First Home Visit by the Family Planning Worker (F. P. W.)*

F.P.W. greets woman and notices her needs and interests
F.P.W. asks questions about problems and needs and discusses related advantages of family planning
Happy with method being used
Infertile
F.P.W. leaves
Wants more children
Personal, husband's or religious objection
F.P.W. asks questions to find out why
F.P.W. answers any objections to family planning or small families
If definitely not interested F.P.W. leaves
If woman interested see below
Woman interested
Not used loop before
Discontinued IUD user
F.P.W. teaches her about: 1) advantages of loop 2) how it works 3) where and how to get it 4) the cost 5) minor nature of side-effects
If no interest in reinsertion, F.P.W. teaches her about: 1) advantages of pill 2) how it works 3) where and how to get it 4) the cost 5) minor nature of side-effects
Woman not interested
Woman interested
F.P.W. tries to find out why and discuss matter
F.P.W. gives woman coupon and tries to set time and place for insertion
F.P.W. suggests time to visit health station for screening exam to get pills
Later F.P.W. tries to follow-up to see if action has been taken
Woman wants another method
Wishes no more children
Wants to space
Provide information on Ota ring, tubal ligation, pill, vasectomy
Provide information on Ota ring, condom, oral pill, rhythm (if Catholic)
Refer to private physician or drugstore

the pill was to be made available to all women under 30.

Selection. The quality of worker has been influenced not only by the training but also by the selection of the young lady to be trained. Taiwan has looked for workers who are:

(1) *emotionally mature.*

(2) *between 30 and 40 years old.* Emotional maturity seems to be correlated most closely with age. Also of significance is that the median age of marriage for females in Taiwan (22–23 years) is higher than in most Asian countries. In other areas a lower age might be acceptable.

(3) *married.* This enables her to talk on an equal level with the potential acceptor. It also lessens the likelihood that she will leave her job in order to marry.

(4) *with children.* Having children helps the field worker to understand the economic values of planning family size. She should have, however, someone to take care of the children.

(5) *using a contraceptive method.* It is best if she herself is spacing or has had as many children as she wants and is satisfactorily using a method to plan her family size. Most desirable is that she is using one of the effective methods the program is promoting: IUD or pill. This also makes her less likely to become pregnant and to have to leave the job.

(6) *indigenous.* She should be living in the community in which she works. This means she will not be looked on as an "outsider," and she will speak the local dialect.

(7) *at ease in discussions.* She should be able to talk at ease with the wives whom she visits. One factor that helps is prior experience in meeting people, particularly a job in which she has dealt with women face-to-face.

(8) *educated.* In Taiwan this requirement has been lowered from a minimum of twelve years to nine years. In other places, lower qualifications might be acceptable if they correspond to the level of schooling in the area. Tests should not place too much weight on written answers; otherwise one may reject the wives who are weak at writing but able in discussion. The Taiwan examination relies heavily on oral responses to questions about what the worker would do in specified situations. When a trained midwife is available, educational requirements are waived.

Vacancy rates: In most programs, budgets dictate a set number of field workers. The going vacancy rate in Taiwan has varied from 40 per cent in 1966 to 10 per cent in 1968. These high vacancy rates were cut down in 1967 by (1) speeding up processing in the personnel office; (2) delegating authority to junior personnel to conduct "screening" of candidates; and (3) giving responsibility to local supervisors to see that several candidates for screening were available in each town with a vacancy. This last step included such simple actions as seeing that recruitment posters were displayed where women would see them and were not left to gather dust on the local health officer's desk.

Training: From 1964 through mid-1969, the newly recruited PPH workers received 12 full working days of training. In mid-1969 an additional week of supervised field practice was added to fit the needs of the younger, largely unmarried, girls who were recruited when government regulations raised the minimum educational qualification to high school level. The major stress continues to be practicing under supervision what has been learned, on the assumption that knowing why the loop is good is of little value if the worker cannot demonstrate the reasons to others. Forty per cent of the course time is allotted to practice, 60 per cent to content.

The topic-oriented content can be divided roughly as follows: "how to" (health education approach), 21 per cent; public health plus physiology, 20 per cent; working procedures (record forms, how to gather names of acceptors, etc.), 20 per cent; discussions and final examination (after field practice), 12 per cent; population background and problems, 9 per cent.

The practice sessions cover two main areas: (1) group presentation and (2) home visiting and group meetings. In group presentation the trainee discusses the need for family planning or demonstrates to others how to use various contraceptives. She then is evaluated before the group for content and quality of presentation. In field practice a trainee is usually assigned to one experienced family planning worker, who takes her to her township a short distance away. She then is instructed in: (a) how to copy out names at local township offices—including helpful hints on how to deal with local township workers; (b) how to home visit—about a day is spent in role-playing home visits in the classroom. Then, the trainee makes about 90 visits, some accompanied by the regular field worker. The trainee then reports to the worker how many women accepted coupons, what problems she had, etc. Discussion follows. This takes about five days; (c) how to hold a *lin* meeting—organizing and conducting a group meeting with the help of an experienced worker.

Supervision: In 1966 a new section was created with specific responsibility for supervision of all field workers. The need was demonstrated when a spot check of 54 workers during working hours found 11 definitely not working and 16 more not where they should have been according to the work plan.

In June 1969 there were 20 supervisors for 350 full-time field workers. These will be increased to 30 to handle the projected increase of workers to 450 by the fourth quarter of 1969. Usually these supervisors work closely with the county or city chief nurse at the health bureau of the 20 cities or counties of Taiwan Province and Taipei City. The supervisors are expected to spend about 20 working days per month visiting the field workers in their local townships. During late 1969 the United Nations International Children's Emergency Fund provided motorcycles for these supervisors to increase local coverage. In addition, there are 5 regional supervisory chiefs, who are expected to spend 15 days monthly in the field checking on the PPH supervisors. They have cars for this work.

Although workers are evaluated largely according to set targets of acceptors, the system was modified in 1967 so that 30 per cent of their incentive bonus grade now is based on the local supervisor's observation. If targets are exceeded, workers are given official recognition and cash bonuses equal to from one to five months salary each year. Since workers' salaries are about US$25 a month,

the system is less expensive than would be expected. The money is provided by the Population Council; regulations forbid its inclusion in local budgets. The cost of all bonuses is about $15,000 a year and the money is well spent. If workers prove unproductive after field supervisors give them special help, they are asked to resign after the third consecutive month of warning.

Research and Evaluation

Evaluation, previously carried out by the former Population Studies Center, is now conducted by two divisions of the Taiwan Provincial Institute of Family Planning (IFP): the Planning and Evaluation Division and the Survey and Research Division. The former evaluates field workers through coupon analysis and also the postpartum mailing program and is also responsible for operational as well as basic demographic research. The latter evaluates specific activities, such as the loop or pill, and the family planning program as a whole.

The Institute is now fairly well-organized for research operations with a full-time staff of 45 college graduates. It has a corps of 70 well-trained part-time interviewers who live in sample areas, a group of experienced survey supervisors, competent coders, an excellent sampling frame, and a Data Processing Division with an IBM 1130 computer. All surveys are conducted carefully, in accordance with standard procedures. The Population Studies Center of the University of Michigan provides advice on research programs and analysis.

The types of immediate program evaluation being conducted cover three areas: the IUD; the oral pill; and operations research (including both fieldwork and general health education). There is also long-term evaluation, concerned primarily with the overall effect of family planning programs on fertility levels.

IUD program. An annual island-wide IUD acceptor follow-up survey provides data for the evaluation of the IUD. The first survey, in October 1965, combined with the first knowledge, attitude, and practice of family planning survey to reach a sample of 2,100 women out of 110,000 total acceptors at that time; the second, in 1966, a sample of 5,000 women out of 240,000 acceptors; and the third, in late 1968, a sample of 6,000 out of 470,000 acceptors. The second survey showed that 88 per cent of acceptors used the loop to stop having children entirely, and 76 per cent had had no previous contraceptive experience. About 40 per cent of all the acceptors had terminated the use of the loop at the time of the interview. Of those terminated, 63 per cent had removed it for medical or other reasons, 20 per cent had expelled it, and 17 per cent had had a pregnancy with the loop in place. (The pregnancy rate was about 5 per cent if all acceptors were taken into account.) At the end of two years of use, 32 per cent of the women had removed the loop, 10 per cent became pregnant, and 7 per cent expelled the loop naturally. Continuing use after six months (includes reinsertions) were 78 per cent, after a year 67 per cent, after two years 51 per cent, and at the end of 30 months 45 per cent. The pregnancy rate was a bit high because of the early program use of the smaller 25 mm. loop (stopped in 1966).

Among the discontinued users, 60 per cent were not using any contraceptive method at the time of interview. However, the fertility of the acceptors after insertion was very low. This was true even for couples who gave up the IUD. Only 4 per cent of all acceptors, or 11 per cent of the terminators, had had a birth after insertion. The corresponding percentage figures for couples who had had the insertion at least 30 months before the interview are 7 and 14. In other words, the fertility of loop acceptors is very low even if the discontinuation rate seems high: most of the women manage to lower their subsequent fertility by other means—including abortion.

The evaluation of the medical aspects of use of the loop comes from the Taichung IUD Medical Follow-up Study. Since 1963 about 10,000 loop acceptors in Taichung City have been followed up every six months after insertion. They were either brought back to the clinic for medical examination or interviewed by public health nurses at home. Evidence from the continued examination of Papanicolaou smears of the acceptors suggests that use of the loop does not increase cancer of the uterus.

The only serious side effects of use of the loop are spotting (50 per cent) or increased bleeding after insertion (8 per cent). The comparisons before and after insertion indicate that the use of the loop does not affect significantly the duration or amount of menstrual flow, dysmenorrhea, or vaginal secretion. The study also indicated that the smaller 25 mm. loop has too high a pregnancy rate.

A coupon system not only helps evaluate the performance of field workers but also indicates the type of acceptors. The program is currently recruiting more younger women than it has in the past. The proportion of annual loop acceptors under age 30 has risen from 31 per cent in 1964 to 41 per cent in 1968. The program recruits women fairly proportionally from all educational levels. The acceptance rate is still very low among women who have only one child.

In view of the relatively high fertility among young dropouts, it has been decided to follow up late this year all acceptors still under 30 and to offer oral pills to the dropouts. There are about 100,000 such acceptors up to the end of 1968.

Pill program. The first island-wide pill acceptor follow-up survey was conducted in August 1968, with a sample of 2,400 women out of 45,000 acceptors. The survey indicates that the continuation rate for the pill is lower than for the loop. About 24 per cent drop out in the first month, 38 in three months, 51 in six months, and 69 in a year. Two-thirds of those who stop do so because of side effects, such as nausea and vomiting, headache and dizziness, breakthrough bleeding, and menstrual disorder. The discontinuation rate is especially high in the first month, and then levels off. Most of these side effects are minor and do not seem to warrant stopping.

There are large differences in continuation rates among townships. This suggests that the low continuation rate may be related to the ways in which the pills are introduced and distributed. This is an area currently under investigation.

Operational research. There have been many studies conducted by the Taiwan program to determine the

best contraceptive methods for Taiwanese women and also the best way to approach married couples.

The first was the Taichung Study carried out by Dr. Freedman, Dr. Berelson, and Dr. Takeshita from February to October 1963.[2] The purposes of the study were to find out how much the practice of family planning can be increased by a massive information and service campaign of short duration; the best way of spreading information on family planning; the most acceptable contraceptive method in Taichung; and the impact of the program on the birth rate. The major findings can be summarized as follows: the program is effective; it is not necessary to visit both husband and wife; the IUD is the choice of a large majority of acceptors; the message is spread mostly through word-of-mouth communication; such a large-scale effort could be carried out according to plan, with measured results, without political repercussions, and in such a way as to provide a secure basis for the much larger island-wide effort which followed it.

Another study was designed to compare the cost of home visiting, small group meetings, mailing, and free offers for a limited time. About twice as many women accepted the loop in the free offer area as in those areas where a service charge was made. In areas where a service charge of US$.75 a month was made, home visiting was less costly than mailings or group meetings. In free-offer areas, mailing and home visiting were equally effective, but group meetings were twice as expensive. The conclusion was that home visiting was the most useful method of recruiting loop acceptors, although mailing with a free offer for a limited time also can be inexpensive.

Another area of study has been the free offer for a limited time only. These offers are made usually to poorer counties or those that need encouragement. The number of acceptors usually doubles in the month of the bargain offer. Thereafter it falls off for a month or two but soon springs back. The net effect is a definite gain. The device has been used at the end of a calendar year in a last desperate effort to reach targets. In 1968 the offers were made primarily in the slack summer season and they closed the usual gap for that period. The year's target was exceeded for the first time. It is felt, though, that these offers should be used sparingly; otherwise field workers may tend to save their best efforts until free offers come to their areas.

Studies of estrogen dosage in pills also are under way. The first findings show that pills with lower dosage result in significantly better continuation rates.

An action-oriented study of 1,500 married women aged 20–44 was conducted in Kaohsiung City in late 1966 to discover the most effective public information channels to reach wives aged 20–44. Radio was found to be the most likely way to reach those with no formal education. An action campaign to increase contraceptive acceptances began thereafter with acceptors doubling for a considerable period. A follow-up survey in 1968 is currently being analyzed.

As mentioned earlier, 900,000 letters have been sent to women who had recently had a baby to encourage loop acceptance. The use of mailing has been closely evaluated. Only 3 per cent of the letters were returned because of failure to deliver. The return rate continues to be about 4 per cent. The cost of recruiting one loop case is less than US$.75, which is less than half the cost of home visiting. The letter is being revised to make it more effective and it is also being field-tested.

Field workers. The family planning field workers, all female, are evaluated through two systems: coupon analysis and supervisors' reports.

Each field worker has a monthly and annual loop target which is set by the Institute, and which takes into account the number of married women, the fertility levels, and the proportion of women who are not practicing contraception in the township. When a field worker visits a woman who is interested in the loop, she gives her a coupon. This coupon, presented at the doctor's clinic at the time of insertion, is good for US$.75, half the cost of the insertion fee. The woman pays US$.75; the doctor receives the other US$.75 only when he returns the coupon to the Planned Parenthood Association of China, which handles the administration of funds for loops and pills. The Planned Parenthood Association sends the coupon to the Institute for analysis.

An accomplishment index is calculated monthly for each field worker. The index is classified into seven grades. If it falls into the lowest two grades continuously for three months, the field worker is dismissed. At the end of June and December, the grades of the previous six months are averaged to form 70 per cent of another index used to calculate how much bonus has been earned by exceeding targets. The other 30 per cent of this index comes from the supervisor's report. The supervisors evaluate the field workers on their performance in home visiting, record keeping, use of teaching aids, degree of cooperation, implementation of orders, etc. If the bonus index falls in the top four grades, an incentive payment equal to the salary for one to two or more months will be given each six months.

A study of 230 field workers' records in 1966 showed that the more home visits the worker made after a certain level, the more monthly loop acceptors she was likely to have.

Another survey, of field workers and county/city supervisors, is being planned. The interviews will examine how much they know about family planning methods; how they conduct home visiting and group meetings; what they tell the acceptors; and what kinds of problems they have in the field.

Long-term evaluation. The Institute has been conducting an island-wide KAP survey biannually since 1965. The results from the late 1965 and late 1967 surveys show that the percentage of wives aged 20–44 who had ever practiced contraception has risen from 27 to 42; those currently practicing, from 23 to 34. The mean open live birth interval increased from 36 to 44 months. The proportion of women who know at least one contraceptive method had increased from 79 to 86 per cent and the proportion of women who know the loop increased from 48 to 62. There is, however, very

[2] 3. Berelson and R. Freedman, "A Study in Fertility Control," *Scientific American*, 10(5):3–12. May 1964.

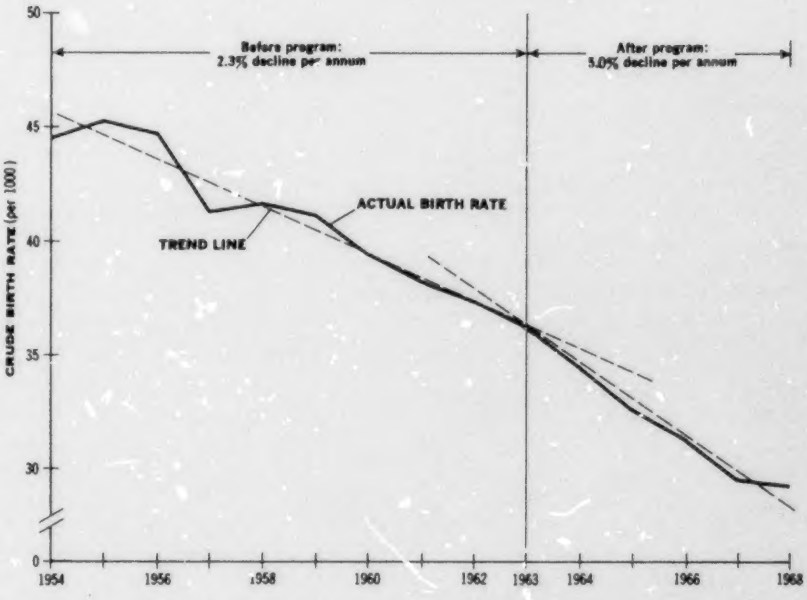
little change in ideal family size: from 4.0 to 3.9 children.

The effect of the loop itself on the decline of fertility during the 1964–68 period can be too easily minimized by reference to continuation rates only. To find out what happens to the fertility of loop acceptors as compared to non-acceptors, a carefully matched study of 3,181 wives from both groups was carried out from 1964–1967. It demonstrated that, although both groups had significant declines in fertility, the drop was 80 per cent for loop acceptors but only 48 per cent for non-acceptors. The general decline also was higher among lower-educated loop acceptors and more educated non-acceptors, which indicates that the former keep their loops in longer but that the latter use other methods more.

That the fertility decline was accelerated to double the rate from 1964 to 1968 while the family planning program was in progress is demonstrated in Figure 3.

Excessive optimism is premature. To reach the goal of less than 2 per cent increase by 1973 is still an immense task. By that year the women of reproductive age will have increased from 3 to 4 million, and the increase will be mostly in the younger, more highly fertile, age groups. The number of women in the age group 20–24 alone will increase by 60 per cent. Delayed marriage, spacing among younger couples, and limiting births among women over 30 in rural areas will have to be stressed.

FIGURE 3. *Taiwan: Fertility Decline before and after Establishment of Family Planning Program in 1963*



Private Efforts

China Family Planning Association

In 1954 the China Family Planning Association was chartered by the Ministry of the Interior. Its main activities are conducted in Taipei and include family planning publicity and contraceptive service. It also has been active in encouraging public enterprises to provide family planning clinic services. In 1968 it accounted for less than 1 per cent of the island's total loop acceptors.

Planned Parenthood Association of China

The Planned Parenthood Association of China, formerly the Maternal and Child Health Association of China, was established in 1964. Because the government had had no official policy for family planning, the government health organizations had been unable to provide the actual family planning service. The Association was organized to provide such services. Although voluntary, it has been operated by the staff of the Taiwan Provincial Department, in their capacity as private citizens. It provides contraceptive supplies, and pays half of the cost of loop insertion to the private doctors from counterpart funds.

Farmers' Associations

At each level of administrative unit there is a local Farmers' Association. The agricultural extension division and the home economics division of the Association participate in family planning activities by distributing leaflets or coupons for loop insertion.

The Taiwan Christian Service

The Taiwan Christian Service has conducted a series of seminars for its members and the public. In 1967 it employed a few public health nurses and social workers to conduct home visits, particularly in remote, rural, and indigent areas.

Other

The larger public enterprises, such as the Taiwan Power Company, Taiwan Sugar Corporation, and Taiwan Oil Company, have provided family planning services for their employees and their dependents as a part of the general welfare services. These were largely motivated by the Family Planning Association.

Pills were being sold commercially in 1969, primarily in Taipei and in a few other large cities, at the rate of about 45,000 cycles a month. Sales have grown fairly steadily over the past three years. It is not known whether the market is affected by the official program, which provides the pills at about US$.25 per cycle compared to the usual commercial cost of US$1.25.

Other contraceptive supplies, such as condoms and foam tablets, are sold in drug stores in all cities and towns. The estimated sale of condoms a month is about 120,000.

About 600 private practitioners in obstetrics and gynecology insert IUDs, both the Lippes loop and the

Japanese Ota ring. They also perform sterilizations for men and women and some do abortions on request. Beyond the official program, they are estimated to insert some 3,000 Ota rings, and to perform 3,000 abortions, 1,000 tubal ligations, and 150 vasectomies a month.

Educational and Scientific Efforts

Registration and Vital Statistics

Taiwan has a household registration system which is thorough and accurate and provides demographic and vital statistics data of good quality. The head of the household is responsible for reporting births, deaths, marriages, etc., within a specified period. In addition, movement of household members must be reported and registered with the local registration office, one in each of the township offices.

The data collected and tabulated are then submitted to the Taiwan Provincial and Taipei City Departments of Civil Affairs for further processing. The Department of Household Registration of the Ministry of the Interior renders general administrative supervision.

During the Japanese occupation, seven censuses were conducted, the first in 1905, the last in 1940. After the restoration of Taiwan there were two censuses, one in 1956 and another in 1966.

The registration data are released by the Taiwan Provincial Department of Civil Affairs through the *Monthly Bulletin of Population Registration Statistics* and the *Demographic Fact Book*.

The Provincial and City Health Departments are interested particularly in the analysis of causes of deaths; with the assistance of the former Taiwan Population Studies Center (presently the Institute of Family Planning), a series of tabulations based on the international classifications were prepared.

Manpower Group of the CIECD

The Council for International Economic Cooperation and Development, which is the economic planning body particularly concerned with industrialization, has set up a group to study the manpower problems. The group studies the current manpower demand and supply, estimates the future needs, and formulates policies to develop the manpower to meet them.

Labor Force Survey Research Institute

To estimate continuously the number of economically active population and their employment status, the Labor Force Survey Research Institute, sponsored by the Taiwan Provincial Department of Social Welfare, has been conducting labor force surveys since 1963. The survey is done once every three months with a sample of people over age 15.

Universities and Other Academic Institutions

In general, public and private universities in Taiwan have had limited research activities in demography and population studies. A special area fertility survey, partially supported by the Population Council, was conducted in 1957 through the sociology department of National Taiwan University. Research activities emphasizing the health aspects of population problems have been done by the Institute of Public Health of the National Taiwan University Medical College and the Department of Social Medicine of the National Defense Medical Center. National Taiwan University Medical School has been most active in biomedical studies and in the study of the megestrol acetate contraceptive "mini pill."

The Academia Sinica undertook a Vital and Demographic Registration Study from 1966–1969. Its Institute of Economic Research has conducted studies on the registration and fertility pattern.

Teaching of population dynamics and family planning in the medical and other allied professional schools in Taiwan is very limited. Only one or two universities have offered a formal course in demography or related areas. None of the universities confers a degree in this subject.

Foreign Assistance

Until 1968, Taiwan had no official family planning policy and therefore the annual budget did not allot money for the family planning program, which began in 1962. To get the program started, other sources of money had to be found. United States Agency for International Development funding to Taiwan was not possible: the island was considered to be economically stable enough for AID to stop its direct support in 1965. The International Planned Parenthood Federation also could not help because the local Family Planning Association was not a member. The Swedish government could not help because it did not recognize the Republic of China. Money came primarily from two sources, counterpart funds and the Population Council.

Counterpart Funds

This was the main source. It could not come directly, for at the beginning of the period the U. S. had not included family planning in its foreign aid. By the time it had done so, Taiwan had made enough economic progress so that it was cut off the list of recipient countries.

Fortunately, however, there were in Taiwan large counterpart funds from previous grants. Some of these funds were drawing interest at about 10 per cent a year and such "second-generation" money was not controlled by Washington, but by the local trustees and the American Embassy.

Through the efforts of Mr. K. T. Li (now Minister of Finance) and of the local U. S. authorities, the equivalent of US$1.5 million was set up as a special five-year fund to be spent on the island-wide program. For the first years this US$300,000 annually covered the cost of the local bills.

The Population Council

From the beginning of the pilot Taichung Study to 1969, the Council has invested more than US$1 million in Taiwan. Until 1963, most of the money went into field research, the results of which indicated that the intrauterine device (the Lippes loop) was an acceptable and probably effective method suitable for mass adoption. Since 1963 the Council's grants (for studies and the program) have amounted to about $150,000 a year. Of this amount, about $100,000 annually is devoted to strengthening the national program, and is used for testing new methods of information and education, training, some equipment, and for incentives to get more

acceptors. The remaining $50,000 is used to support program research and evaluation. Until 1969, the Joint Commission on Rural Reconstruction also contributed $25,000 a year for evaluation, but this amount has been discontinued with the decrease of JCRR funds. The foregoing figures do not cover the cost of the advisors at the Population Council's East Asia office in Taichung. These have been few: about one-third of the time of the Regional Representative, one full-time program advisor, and (for 18 months) a medical advisor, who also served Korea.

In 1968 the Council, with funds made available to it by AID, supported the training of workers from other countries, the burden of which had been carried for several years by Taiwan. Out of these same funds, the Council paid one-fourth of the cost of an 1130 IBM computer, to cover the estimated part of the computer's work on behalf of other countries. (The Taiwan government paid half of the total $160,000 and the Population Council, out of its own funds, the other one-fourth. The basic unit was in operation by the second quarter of 1969; the remaining components will be in place by the end of the year.)

In addition to family planning program-oriented support, the Council provided about US$70,000 to the Provincial Department of Civil Affairs for vital statistics and registration improvement studies. National Taiwan University has also received funds for biomedical and related research. The Council also provided smaller amounts for specific study projects and fellowships.

The University of Michigan

Important help has been received from this University in the form of advisory visits by Professor Ronald Freedman and his associates, computerizing data, and fellowships. These services have been paid from grants to the University, primarily from the Ford Foundation, the Population Council, and the National Institute of Health.

The Pathfinder Fund

Beginning in 1968, the Fund has provided free pills for the program. At the end of July 1969 these amounted to 145,000 cycles, valued at about US$27,000.

Other

In 1969 United Nations International Children's Emergency Fund has helped strengthen supervision by providing cars and motorcycles worth about US$20,000.

The Japanese Organization for International Cooperation in Family Planning has also entered the group of contributing countries in 1969 by providing seven vehicles and some medical and contraceptive supplies, valued at about US$40,000.

The School of Public Health at Harvard University and the School of Hygiene and Public Health at Johns Hopkins University (1969) have started small cooperative research programs with institutions in Taiwan.

Summary

From 1964 to 1968 Taiwan has demonstrated that a family planning program can help accelerate a wide-scale fertility decline in a developing Asian area even without an official government policy. A large part of its success has been due to its ability to bridge the gap between the physician who can provide service and the woman who needs it. The key is the full-time field worker who identifies the most likely contraceptive acceptors through Taiwan's superb household registration system and who brings the news of the simple but effective IUD to their homes. The program is one of the most carefully evaluated of its kind.

Since the program achieved an official status in May 1968, more emphasis has been placed on supporting home visiting with broader educational approaches, particularly the use of the mass media. The oral pill also has been introduced on a wide scale.

Much progress, however, remains to be made. The following represent some future needs:

(1) Increased government support of the family planning program. The percentage of marriageable women in the population is beginning to increase rapidly and will continue to do so for more than 10 years. This means that the birth rate probably will rise, unless the government provides more support for the family planning program.

(2) Broad program emphasis on improving standards of living by reducing the number of dependents.

(3) Assumption of appropriate responsibilities by other (non-health) government agencies. Government departments other than Health should have their responsibilities for family planning defined, for their help is needed in this area.

(4) Greatly increased information budget. For the first time, the government is making the program visible with outdoor and indoor signs. Official agencies control part of the time of radio and other mass media; some of this could be used for family planning information.

(5) Revision of school curricula to make children aware of the relationship between improved family life and small families.

(6) Inclusion of the essentials of family planning and demography in medical school curricula aimed at students *and* alumni.

Major Publications

There have been more than a hundred papers on the Taiwan program. The following represent a selected few. Copies of some are available upon request from: The Chinese Center for International Training in Family Planning, P. O. Box 112, Taichung, Taiwan, Republic of China.

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Other *Country Profiles* published to date are:

Hong Kong (November 1969)
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